

REMARKS

Claims 1-15 are pending in the application (the "Application").

Claims 1-15 have been rejected.

No claims have been allowed.

Claims 11-14 have been amended.

Claims 16-20 have been added.

Claims 1-20 remain in the application.

Reconsideration of the claims is respectfully requested.

Drawings

Two errors occurred when the formal drawings were prepared from the originally filed informal drawings. Please amend the formal drawings to make the corrections indicated in the document entitled Proposed Drawing Changes.

35 U.S.C. § 103(a) Obviousness

On Pages 2-4 of the November 29, 2002 Office Action, the Examiner rejected Claims 1-15 under 35 U.S.C. § 103(a) as being unpatentable over United States Patent No. 2,688,373 to *Olson* in view of United States Patent No. 5,177,329 to *Klayman*. The Applicant respectfully traverses the Examiner's position that the Applicant's invention is obvious in view of the *Olson* reference and

the *Klayman* reference. The Applicant respectfully requests the Examiner to withdraw the rejection of Claims 1-15 in view of the following arguments.

During *ex parte* examinations of patent applications, the Patent Office bears the burden of establishing a *prima facie* case of obviousness. MPEP § 2142; *In re Fritch*, 972 F.2d 1260, 1262, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992). The initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention is always upon the Patent Office. MPEP § 2142; *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1472, 223 U.S.P.Q. 785, 788 (Fed. Cir. 1984). Only when a *prima facie* case of obviousness is established does the burden shift to the applicant to produce evidence of non-obviousness. MPEP § 2142; *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). If the Patent Office does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of a patent. *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Grabiak*, 769 F.2d 729, 733, 226 U.S.P.Q. 870, 873 (Fed. Cir. 1985).

A *prima facie* case of obviousness is established when the teachings of the prior art itself suggest the claimed subject matter to a person of ordinary skill in the art. *In re Bell*, 991 F.2d 781, 783, 26 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1993). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to

modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art, and not be based on an applicant's disclosure. MPEP § 2142.

For the reasons set forth below the Applicant respectfully submits that the Patent Office has not established a *prima facie* case of obviousness with respect to Claims 1-15 of the Applicant's invention. In rejecting Claim 1 and Claim 9 the Examiner stated:

H. F. Olson teaches: Claims 1 and 9: an acoustical enclosure comprising a speaker box comprising walls that enclose an acoustic chamber (e.g. Fig. 4, #15), a partition coupled to the interior surfaces of the speaker box that divides the chamber into first and second chambers (e.g. Fig. 4, # 21), a first speaker mounted within the partition in which the front of the speaker has access to the first chamber and the back portion of the speaker has access to the second chamber (e.g. Fig. 4, # 33), and a second speaker mounted in one of the walls enclosing the chamber wherein a front portion of the second speaker has access to the air outside of the speaker box, and the back portion of the second speaker has access to the second chamber (e.g. Fig. 4, #29), and referring to claim 9, a second speaker enhancing the acoustical performance of the acoustical chamber of the enclosure (e.g. Column 8:26-40).

However, it is unclear if H. F. Olson teaches (a) at least one wall enclosing the acoustic chamber comprising portions forming an external vent to the second chamber or (b) the second speaker enhancing the acoustical performance of the acoustical chamber of the enclosure by extending a range of low frequency response to 30 Hz. Klayman teaches this (a): (e.g. Fig. 1, # 20) and (b): (e.g. Column 2:55-60).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the enclosure taught by H. F. Olson to include an external vent to the second chamber and the second speaker enhancing the acoustical performance of the acoustical chamber of the enclosure by extending a range of low frequency response to 30 Hz as taught by Klayman. The advantage of this would be an acoustic enclosure with decreased destructive interference and improved low frequency sound production. [November 29, 2002 Office Action, Pages 2-3].

The Applicant agrees that the *Olson* reference does not disclose the use of an external vent to a second chamber of an acoustical enclosure, and does not disclose the second speaker enhancing the acoustical performance of the acoustical chamber of the enclosure by extending a range of low frequency response to thirty Hertz (30 Hz). The Applicant notes that the *Olson* reference is not concerned with a frequency range that extends to thirty Hertz (30 Hz). The *Olson* reference discusses the use of a second speaker in a frequency range of fifty Hertz (50 Hz) to three hundred Hertz (300 Hz). This is a range considerably above the thirty Hertz (30 Hz) lower limit frequency of the present invention. *Olsen* states: "In the example referred to above, over the frequency range from 50 to 300 cycles per second, the acoustical impedance presented to the back of the large loudspeaker is practically the same as that of a very large cabinet." (*Olson*, Column 8, Lines 44-48). The *Olson* device is directed to providing a small speaker cabinet that is acoustically equivalent to a large speaker cabinet. The *Olson* device is not concerned with extending the low frequency range of a speaker system to a frequency of thirty Hertz (30 Hz). The lower limit for the *Olson* device is fifty Hertz (50 Hz).

The Applicant respectfully traverses the Examiner's assertion that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the enclosure taught by *Olson* to include an external vent to the second chamber and using the second speaker to enhance the acoustical performance of the acoustical chamber of the enclosure by extending a range of low frequency response to thirty Hertz (30 Hz) as taught by *Klayman*.

First, the supposed motivation to obtain “an acoustic enclosure with decreased destructive interference and improved low frequency sound production” is very general and does not specifically suggest combining the teachings of the *Olson* reference with the teachings of the *Klayman* reference. There must be some suggestion or motivation, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or to combine reference teachings. The desire to obtain “an acoustic enclosure with decreased destructive interference and improved low frequency sound production” is too general and vague to provide the requisite motivation to modify a reference or to combine reference teachings. *Olson* does not discuss the concept of reducing destructive interference.

The *Klayman* device is a low frequency loud speaker system comprising a folded air column. The folded air column requires a very large enclosure to achieve a resonant frequency of thirty Hertz (30 Hz). “Thus, for a 30 hertz resonant frequency the total length of the air column, including column section 28 from the speaker to end wall 14 and the length of the column 30 from the end wall 30 to the aperture 20 is somewhat greater than nine feet.” (*Klayman*, Column 2, Lines 64-68) (Emphasis added). “The folded air column 28, 30 causes the system to act like an organ pipe that is closed at one end and opened at the other.” (*Klayman*, Column 3, Lines 1-3) (Emphasis added). The *Klayman* system can only reach a low thirty Hertz (30 Hz) frequency by using a very large structure like an organ pipe.

Further, the *Klayman* system is not designed for high frequencies. “The described system is not intended for use above very low frequencies but can be modified for such use.” (*Klayman*, Column 4, Lines 23-24) (Emphasis added). The modification that *Klayman* refers to (shown in Figure 2 of *Klayman*) provides a system that has two resonant frequencies. For example, the modified *Klayman* system can resonate at thirty Hertz (30 Hz) and at sixty Hertz (60 Hz). (*Klayman*, Column 5, Lines 26-31). But sixty Hertz (60 Hz) barely reaches the lower limit of the range in *Olson* (fifty Hertz (50 Hz) to three hundred Hertz (300 Hz)). It is clear that the *Klayman* device is generally limited to low frequencies. It is also clear that the *Klayman* system must be quite large (like a pipe organ) to achieve an efficient low frequency response. The Applicant’s invention does not have these limitations.

Klayman has only one speaker. The single speaker in *Klayman* is positioned so that one side of the speaker excites the air column at the closed end of the folded air column and the other side of the speaker excites the air column at the open end of the folded air column. Further, the speaker in *Klayman* must be aligned with the output port of the “pipe organ” folded air column. “The speaker axis is aligned with the center of enclosure port 20 and is directed generally perpendicular to the plane of port 20.” (*Klayman*, Column 2, Lines 52-54). The Applicant’s invention does not have these limitations.

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The Applicant respectfully submits that one skilled in the art would not attempt to combine the apparatus and method that *Klayman* uses to obtain a low frequency response of thirty Hertz (30 Hz) with the *Olson* speaker system. The Applicant submits that a combination of the *Klayman* pipe organ structure and the *Olson* speaker system would be unworkable. The pipe organ structure of *Klayman* is not compatible with the *Olson* speaker structure. For this reason there would be no suggestion or motivation to combine the teachings of the *Klayman* reference with the teachings of the *Olson* reference.

Even if the *Olson* reference could somehow be combined with the *Klayman* reference, the combination would not teach, suggest, or even hint at the Applicant's invention as set forth in Claims 1-15. MPEP § 2142 indicates that a prior art reference (or references when two or more references are combined) must teach or suggest all the claim limitations of the invention. The teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art, and not be based on an applicant's disclosure. In the present case, the *Olson* reference and the *Klayman* reference in combination would not teach or suggest all the claim limitations of the Applicant's invention. Therefore, the Applicant respectfully submits that the rejection of Claim 1 and Claim 9 under 35 U.S.C. § 103(a) has been overcome.

The Examiner also rejected Claims 2, 4, 6, 8 and 10 under 35 U.S.C. § 103(a). The Examiner stated "H. F. Olsen also teaches: Claims 2, 4, 6, 8, and 10: the partition comprises portions that form an internal vent between the first chamber and the second chamber (e.g. Fig. 4, #23)."

(November 29, 2002 Office Action, Page 3, Lines 12-14). The Applicant respectfully disagrees with the Examiner's characterization of the opening 23 in partition 21 of *Olson* as an "internal vent." The opening 23 is not an internal vent as that term is used by the Applicant because *Olson* places a second loudspeaker 33 within the opening 23 and completely closes the opening 23. "A second loudspeaker 33 is mounted within the diaphragm 35 thereof covering the partition opening 23 so that it forms with the partition a closure for that opening." (*Olson*, Column 4, Lines 71-75) (Emphasis added). *Olson* does not disclose an internal vent. Therefore, the Applicant respectfully submits that the rejection of Claims 2, 4, 6, 8, and 10 under 35 U.S.C. § 103(a) has been overcome.

The Examiner also rejected Claim 13 and Claim 15 under 35 U.S.C. § 103(a). The Examiner stated "H. F. Olsen also teaches: Claims 13 and 15: placing an internal vent in the partition between the first chamber and the second chamber (e.g. Fig. 4, #23)." (November 29, 2002 Office Action, Page 4, Lines 16-17). The Applicant respectfully disagrees with the Examiner's characterization of the opening 23 in partition 21 of *Olson* as an "internal vent." The opening 23 is not an internal vent as that term is used by the Applicant because *Olson* places a second loudspeaker 33 within the opening 23 and completely closes the opening 23. "A second loudspeaker 33 is mounted within the diaphragm 35 thereof covering the partition opening 23 so that it forms with the partition a closure for that opening." (*Olson*, Column 4, Lines 71-75) (Emphasis added). *Olson* does not disclose an internal vent. Therefore, the Applicant respectfully submits that the rejection of Claim 13 and

Claim 15 under 35 U.S.C. § 103(a) has been overcome.

The Applicant notes that Claims 2-8 depend directly or indirectly from Claim 1. As previously described, Claim 1 contains unique and novel claim limitations of the Applicant's invention. Therefore, Claims 2-8 also contain the same unique and novel claim limitations of Claim 1 and are therefore patentable over the *Olson* reference and the *Klayman* reference, either separately or in combination.

The Applicant notes that Claim 10 depends from Claim 9. As previously described, Claim 9 contains unique and novel claim limitations of the Applicant's invention. Therefore, Claim 10 also contains the same unique and novel claim limitations of Claim 9 and is therefore patentable over the *Olson* reference and the *Klayman* reference, either separately or in combination. The Applicant notes that new Claims 19-20 depend directly or indirectly from Claim 9. Therefore, Claims 19-20 also contain the same unique and novel claim limitations of Claim 9 and are therefore patentable over the *Olson* reference and the *Klayman* reference, either separately or in combination.

The Applicant notes that amended Claim 11 contains unique and novel claim limitations that are analogous to the unique and novel claim limitations of Claim 1. Therefore, amended Claim 11 is patentable over the *Olson* reference and the *Klayman* reference, either separately or in combination. The Applicant notes that Claims 12-15 and new Claims 16-18 depend directly or indirectly from Claim 11. Therefore, Claims 12-18 also contain the same unique and novel claim limitations of Claim 11 and are therefore patentable over the *Olson* reference and the *Klayman* reference, either

separately or in combination.

The Applicant respectfully submits that Claims 1-20 are in condition for allowance. Allowance of Claims 1-20 is respectfully requested.

The Applicant's attorney has made the amendments and arguments set forth above in order to place this Application in condition for allowance. In the alternative, the Applicant's attorney has made the amendments and arguments to properly frame the issues for appeal. In this Amendment, the Applicant makes no admission concerning any now moot rejection or objection, and affirmatively deny any position, statement or averment of the Examiner that was not specifically addressed herein.

SUMMARY

For the reasons given above, the Applicant respectfully requests reconsideration and allowance of pending claims and that this Application be passed to issue. If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this Application, the Applicant respectfully invites the Examiner to contact the undersigned at the telephone number indicated below or at wmunck@davismunck.com.

The Commissioner is hereby authorized to charge any additional fees connected with this communication or credit any overpayment to Deposit Account No. 50-0208.

Respectfully submitted,

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APPENDIX A

VERSION OF CLAIMS SHOWING CHANGES MADE

1. [Unchanged] An acoustical enclosure comprising:
a speaker box comprising walls that enclose an acoustic chamber;
a partitioning wall coupled to interior surfaces of said walls of said speaker box, said partitioning wall dividing said acoustic chamber into a first chamber and into a second chamber;
wherein at least one wall of said walls that enclose said acoustic chamber comprises portions that form an external vent to said second chamber;
a first speaker mounted within said partitioning wall, wherein a front portion of said first speaker has access to said first chamber and a back portion of said first speaker has access to said second chamber; and
a second speaker mounted within one of said walls that enclose said acoustic chamber, wherein a front portion of said second speaker has access to air outside said speaker box and a back portion of said second speaker has access to said first chamber.
2. [Unchanged] An acoustical enclosure as claimed in Claim 1 wherein said partitioning wall comprises portions that form an internal vent between said first chamber and said second chamber.
3. [Unchanged] An acoustical enclosure as claimed in Claim 1 wherein said first speaker and said second speaker are connected in phase electrically.
4. [Unchanged] An acoustical enclosure as claimed in Claim 3 wherein said partitioning wall comprises portions that form an internal vent between said first chamber and said second chamber.
5. [Unchanged] An acoustical enclosure as claimed in Claim 1 wherein a volume of said first chamber is effectively increased due to the presence of said second speaker within one of said walls that enclose said acoustic chamber.
6. [Unchanged] An acoustical enclosure as claimed in Claim 5 wherein said partitioning wall comprises portions that form an internal vent between said first chamber and said second chamber.

7. [Unchanged] An acoustical enclosure as claimed in Claim 1 having a low frequency response range that extends to approximately thirty Hertz.

8. [Unchanged] An acoustical enclosure as claimed in Claim 7 wherein said partitioning wall comprises portions that form an internal vent between said first chamber and said second chamber.

9. [Unchanged] An acoustical enclosure comprising:
a speaker box comprising walls that enclose an acoustic chamber;
a partitioning wall coupled to interior surfaces of said walls of said speaker box, said partitioning wall dividing said acoustic chamber into a first chamber and into a second chamber;
wherein at least one wall of said walls that enclose said acoustic chamber comprises portions that form an external vent to said second chamber;
a first speaker mounted within said partitioning wall, wherein a front portion of said first speaker has access to said first chamber and a back portion of said first speaker has access to said second chamber; and
a second speaker mounted within one of said walls that enclose said acoustic chamber, wherein a front portion of said second speaker has access to air outside said speaker box and a back portion of said second speaker has access to said first chamber;
wherein said second speaker enhances acoustical performance of said acoustic chamber of said acoustical enclosure by extending a range of low frequency response of said acoustical enclosure to approximately thirty Hertz.

10. [Unchanged] An acoustical enclosure as claimed in Claim 9 wherein said partitioning wall comprises portions that form an internal vent between said first chamber and said second chamber.

11. [Amended] A method for enhancing acoustical performance of a dual chamber acoustical enclosure, said method comprising the [step] steps of:

extending a range of low frequency response of said dual chamber acoustical enclosure to approximately thirty Hertz by placing a first speaker within a partitioning wall that separates a first chamber and a second chamber of said dual chamber acoustical enclosure, wherein a front portion of said first speaker has access to said first chamber and a back portion of said first speaker has access to said second chamber of said dual chamber acoustical enclosure; and

placing a second speaker within a wall of said first chamber of said dual chamber acoustical enclosure, wherein a front portion of said second speaker has access to air outside said dual chamber acoustical enclosure and a back portion of said second speaker has access to said first chamber of said dual chamber acoustical enclosure;

wherein at least one wall of said walls that enclose said acoustic chamber comprises portions that form an external vent to said second chamber.

12. [Amended] A method as claimed in Claim 11 [wherein said step of extending a range of low frequency response of said dual chamber acoustical enclosure to approximately thirty Hertz comprises the steps of] further comprising the step of:

[placing a first speaker within a partitioning wall that separates a first chamber and a second chamber of said dual chamber acoustical enclosure, wherein a front portion of said first speaker has access to said first chamber and a back portion of said first speaker has access to said second chamber of said dual chamber acoustical enclosure;]

[placing a second speaker within a wall of said first chamber of said dual chamber acoustical enclosure, wherein a front portion of said second speaker has access to air outside said dual chamber acoustical enclosure and a back portion of said second speaker has access to said first chamber of said dual chamber acoustical enclosure; and]

electrically connecting said first speaker and said second speaker in phase.

13. [Amended] A method as claimed in [Claim 12] Claim 11 further comprising the step of:

placing an internal vent in said partitioning wall between said first chamber and said second chamber.

14. [Amended] A method as claimed in [Claim 12] Claim 11 further comprising the step of:

effectively increasing a volume of said first chamber due to the presence of said second speaker within said wall of said first chamber of said dual chamber acoustical enclosure.

15. [Unchanged] A method as claimed in Claim 14 further comprising the step of: placing an internal vent in said partitioning wall between said first chamber and said second chamber.
16. [New] A method as claimed in Claim 12 further comprising the step of: placing an internal vent in said partitioning wall between said first chamber and said second chamber.
17. [New] A method as claimed in Claim 12 further comprising the step of: effectively increasing a volume of said first chamber due to the presence of said second speaker within said wall of said first chamber of said dual chamber acoustical enclosure.
18. [New] A method as claimed in Claim 17 further comprising the step of: placing an internal vent in said partitioning wall between said first chamber and said second chamber.
19. [New] An acoustical enclosure as claimed in Claim 9 wherein said first speaker and said second speaker are connected in phase electrically.
20. [New] An acoustical enclosure as claimed in Claim 19 wherein said partitioning wall comprises portions that form an internal vent between said first chamber and said second chamber.